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ABSTRACT

The operation of the U.S. Bureau of Apprenticeship and Training was examined to determine the following: (1) the use of apprenticeship to train workers; (2) federal and state resources dedicated to administering apprenticeship; and (3) the representation of minorities and women in apprenticeship. Information was obtained from the U.S. Department of Labor on federal apprenticeship expenditures and operations, from a survey of the 50 state directors and the heads of the 30 state and territorial apprenticeship agencies, and from the bureau's administrative data. The study found that there are relatively few apprentices (283,000 in 1990) and that their numbers are declining, whereas about 1.4 million students are enrolled in colleges. Public resources for apprenticeship have declined to about 70 percent of the 1980 support level. Minority and female apprentices tend to be concentrated in lower-paying occupations, and there are very few women apprentices--about 7 percent of the total. Recommendations were made for the Bureau of Apprenticeship and Training and the Women's Bureau to identify actions to improve the outreach to and recruitment of women into apprenticeships; however, no specific guidance or directives were issued. (Appendixes include lists of the 68 occupations with the largest numbers of apprentices, minority and female apprentices' occupations by earnings, percentage of female apprentices by occupations, comments from the Department of Labor, and a list of major contributors to the report.) (KC)

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United States General Accounting Office

GAO

Report to Congressional Requesters

March 1992

APPRENTICESHIP TRAINING

Administration, Use, and Equal Opportunity

CE060548

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GAO

United States
General Accounting Office
Washington, D.C. 20548

Human Resources Division

B-246739

March 4, 1992

The Honorable Carl C. Perkins
Chairman, Subcommittee on
Employment Opportunities
Committee on Education and Labor
House of Representatives

The Honorable Matthew G. Martinez
Chairman, Subcommittee on Human Resources
Committee on Education and Labor
House of Representatives

This report responds to your request for an assessment of the operation of the Bureau of Apprenticeship and Training. It contains a recommendation to the Secretary of Labor.

Copies of this report are being sent to the Secretary of Labor; the Director, Office of Management and Budget; and other interested parties.

This report was prepared under the direction of Linda Morra, Director, Education and Employment Issues, who may be reached on (202) 512-7014 if you have any questions concerning the report. Other major contributors are listed in appendix VII.

Lawrence H. Thompson

Lawrence H. Thompson
Assistant Comptroller General

Executive Summary

Purpose

America's continued economic well-being is tied to how well we manage our human resources. Changing demographics, combined with the increasing complexity of work, have made the training and retraining of American workers a critical issue. Apprenticeship is one proven method of developing skilled workers. In its simplest terms, apprenticeship is learning by doing under the auspices of a mentor or master craft worker. While the U.S. apprenticeship system has a good reputation for training skilled workers for the construction trades and several manufacturing occupations, it has not expanded much beyond these traditional areas.

In May 1990, the Chairman, Subcommittee on Employment Opportunities, House Committee on Education and Labor, reflecting his concern for work-force training, asked GAO to assess the operation of the Bureau of Apprenticeship and Training. Specifically, GAO was to determine (1) the use of apprenticeship to train workers, (2) federal and state resources dedicated to administering apprenticeship, and (3) the representation of minorities and women in apprenticeship.

Background

Apprenticeship is primarily a private sector activity consisting of structured, long-term (typically 3 to 4 years), on-the-job training combined with related theoretical instruction, leading to certification of journey worker status in a skilled trade. About two-thirds of U.S. apprentices work in 20 occupations, mainly in the construction and metal trades, even though registered apprenticeships exist for about 800 occupations. In 1990, about 283,000 civilian workers were registered in 43,000 apprenticeship programs. Although apprenticeship programs exist in the military—in 1990 there were about 44,000 uniformed military apprentices—GAO focused on civilian apprenticeship (see pp. 13-14).

The Department of Labor's Bureau of Apprenticeship and Training is responsible for administering the program but does not provide direct apprenticeship training. The Bureau's responsibilities include registering apprenticeship programs or recognizing state agencies to register them, promoting apprenticeship to potential sponsors, providing technical assistance to existing sponsors and to organizations that would like to establish apprenticeship programs, helping sponsors to develop affirmative action plans, and enforcing compliance with equal employment opportunity standards. The Bureau was appropriated about $16 million in 1990 to administer the program. In 23 states, Bureau personnel alone administer the program; in 27 states, Puerto Rico, the Virgin Islands, and

the District of Columbia, state apprenticeship councils participate in program administration (see pp. 8-9).

For this study, GAO (1) obtained information from the Labor Department on federal apprenticeship expenditures and general descriptive information on apprenticeship operations, (2) surveyed the 50 Bureau state directors and the heads of the 30 state and territorial apprenticeship agencies concerning resources, promotion of apprenticeship, and equal employment opportunity in apprenticeship, and (3) obtained administrative data from the Bureau that contained demographic and program information on apprenticeship programs and participants in 1991.

Results in Brief

Excluding the construction trades, U.S. employers seldom use apprenticeship, and the number of civilian workers receiving training as registered apprentices declined over the past decade. In 1990, the number of registered apprentices was equivalent to about 2 percent of the number of U.S. college students. Inflation-adjusted federal resources in support of the Bureau of Apprenticeship and Training have declined by 30 percent since 1980 and currently comprise about 0.4 percent of Labor's spending on training programs. States augment this spending with their own resources, but several state apprenticeship directors expect this support to decline in the next few years (see pp. 19-20). The representation of minorities[1] and women in registered apprenticeship programs has grown substantially since the 1970s; however, women's participation continues to lag. Minority representation is roughly equal to minority participation in the labor force. In contrast, women's representation—at 7 percent—is substantially lower than their presence in the labor force. Labor funding for activities to recruit women into apprenticeships in recent years has been much lower than in the late 1970s and early 1980s. Special programs to help recruit and prepare women for apprenticeship still exist; however, these programs reach only a few women. In addition, both minorities and women tend to be concentrated in apprenticeship programs for lower paying occupations (see pp. 23-25).

[1]Includes blacks, Hispanics, Asian and Pacific Islanders, and American Indians.

GAO's Analysis

Relatively Few Apprentices and Number Is Declining

Apprenticeship currently plays a minor and declining role in training U.S. workers. In 1990, about 283,000 persons were in registered apprenticeship programs, while about 14 million were enrolled in 2- and 4-year colleges in the United States. Although employment has increased by 18 million since 1980, the number of registered civilian apprentices declined by 11 percent over the same period. In addition, the number of apprenticeship programs has declined since the mid-1980s, and in 1990 almost half the programs had no apprentices (see p. 17).

Public Resources for Apprenticeship Have Declined

Fiscal year 1990 federal spending for administering apprenticeship—about $16 million—was about 70 percent of the 1980 level. In 1990, states spent roughly three times the level of federal spending to support apprenticeship, although substantial reductions in state support are likely. Of the 30 states and territories with apprenticeship councils, 21 reported spending about $18 million in fiscal year 1990 on apprenticeship administration and 14 reported spending $29 million on related theoretical instruction for apprentices.[2] However, nine state apprenticeship directors reported that they anticipated reductions of 20 percent or more in state funding in fiscal year 1991 (see p. 20).

Minorities and Women Concentrated in Lower Paying Apprenticeships

Minority apprentices tend to be concentrated in lower paying occupations. Based on GAO's analysis of the 68 occupations with the most civilian apprentices, about 32 percent of minority apprentices, versus 23 percent of whites, are in occupations in the lowest earnings quartile. Women are underrepresented in apprenticeships for occupations in the top half of the earnings distribution, and three of the four occupations where women's participation rates are highest—cosmetologist, computer peripheral equipment operator, and cook—are in the lowest earnings group (see p. 25).

[2]Some of these funds may come from federal programs, such as the Carl D. Perkins Vocational and Applied Technology Education Act of 1990.

Relatively Few Women Apprentices

Women's representation in apprenticeship increased from virtually none in 1973 to 6.6 percent in 1983. Since then, progress has slowed. At 7 percent in 1990, women's representation remained far below the Bureau's original goal of one-half of women's participation in the labor force, which nationally is about 45 percent (see p. 24).

Apprenticeship officials attribute women's underrepresentation in apprenticeship to their being unaware of apprenticeship opportunities; not meeting entrance requirements for apprenticeships (particularly in such traditionally male occupations as electricians and steamfitters); and being subject to obstacles, such as hazing and harassment, once they become apprentices. Activities to promote women's participation in apprenticeship have received relatively little funding from Labor in recent years (see p. 26). Labor's Women's Bureau is responsible for formulating standards and policies that promote the welfare of wage-earning women, increase their efficiency, and advance their opportunities for profitable employment. Although the Women's Bureau acts as an agent for encouraging women in apprenticeship, it receives no separate funding for this activity.

Recommendation

GAO recommends that the Secretary of Labor work with the Bureau of Apprenticeship and Training and the Women's Bureau to identify actions to improve the outreach and recruiting of women into apprenticeships.

Agency Comments

The Department of Labor agreed with the findings and conclusions in GAO's report and stated that it has already taken steps to improve opportunities for women (see p. 29).

GAO believes that such efforts as the Secretary's initiative, Women in Skilled Trades, will contribute to improving opportunities to assist women in obtaining training and employment in skilled nontraditional jobs, including apprenticeships. However, it contains no specific guidance or directives to the Bureau to improve women's participation in apprenticeship.

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Abbreviations

AMS	Apprenticeship Management System
BAT	Bureau of Apprenticeship and Training
EEO	equal employment opportunity
GAO	General Accounting Office
OFCCP	Office of Federal Contract Compliance Programs
SAC	state apprenticeship council

Introduction

Background

The increasing complexity of the workplace makes the training and retraining of American workers a critically important issue. Jobs are demanding increasingly skilled workers, while many workers are inadequately prepared for employment. Moreover, insufficient attention is devoted to work-force preparation for youth who are not college bound.[1] One proven method of developing high-skilled workers is apprenticeship.

In the simplest terms, apprenticeship is learning by doing under the guiding supervision of a mentor or master craft worker. It consists of structured, long-term (typically 3 to 4 years), on-the-job training combined with related, theoretical instruction, leading to certification of the attainment of journey worker status in a skilled trade.

Apprenticeship is primarily a private sector program. Employers, or employers together with employee organizations, act as sponsors in all apprenticeship programs. A program may be sponsored by a single employer or a group of employers, jointly by a single employer with a union, or by a group of employers with a union. Jointly sponsored programs have the largest enrollments of apprentices. There is no limit on the number of apprentices who may participate in a program or on the number of programs that an employer may sponsor. The Department of Labor currently recognizes over 800 occupations—from accordion maker to X-ray equipment tester—as apprenticeable. At the end of 1990, about 283,000 persons were enrolled as registered civilian apprentices.

Wisconsin enacted the first apprenticeship legislation in the United States in 1911. Federal participation in apprenticeship began in 1934, when the Secretary of Labor established the Federal Committee on Apprenticeship to serve as the national policy body on apprenticeship. In 1937, the Congress passed the Fitzgerald Act (29 U.S.C. 50) authorizing the Secretary to formulate and promote labor standards necessary to safeguard the welfare of apprentices, to extend the application of such standards by encouraging their inclusion in contracts of apprenticeship, to bring together employers and labor to formulate apprenticeship programs, and to cooperate with state agencies in formulating and promoting standards of apprenticeship.

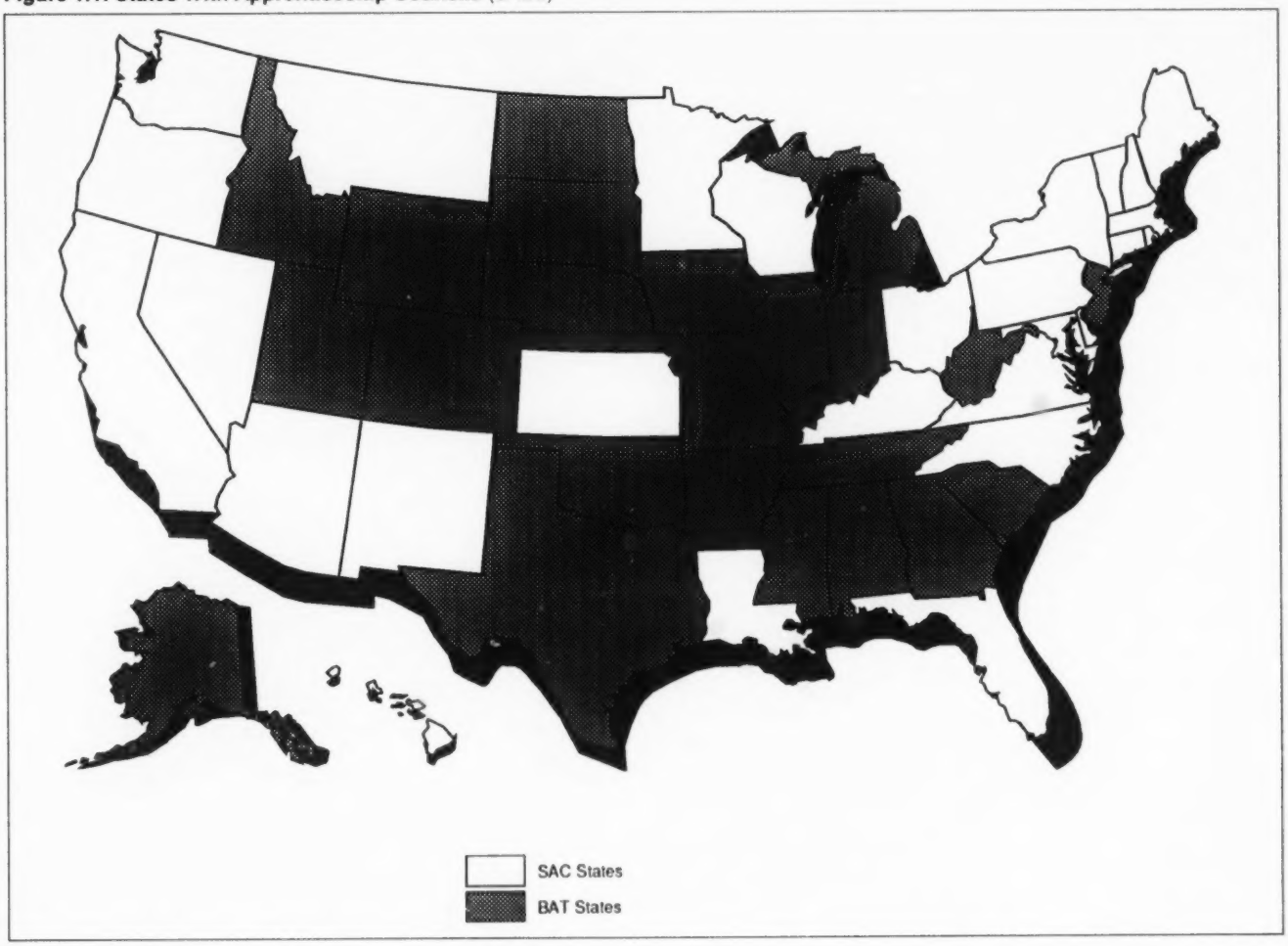
Federal and state governments share responsibility for administering apprenticeship. The Labor Department's Bureau of Apprenticeship and Training (BAT) received about $16 million in fiscal year 1990 to administer

[1]See America's Choice: High Skills or Low Wages, Commission on the Skills of the American Workforce, National Center on Education and the Economy, June 1990.

the program. BAT is responsible for (1) promoting apprenticeship to potential sponsors, (2) providing technical assistance to existing sponsors and to organizations that would like to establish apprenticeship programs, (3) registering programs that meet federal standards, (4) helping sponsors develop affirmative action plans, and (5) enforcing compliance with equal employment opportunity (EEO) regulations. BAT's Washington-based national office provides general policy guidance and direction; most of its 240 staff members are located in about 130 regional, state, and area offices. In 23 states, BAT personnel alone administer apprenticeship.

Federal apprenticeship regulations provide that the Secretary of Labor's recognition of a state apprenticeship council (SAC) authorizes the SAC to register apprenticeship programs that conform with Labor's published standards. Twenty-seven states, Puerto Rico, the Virgin Islands, and the District of Columbia have federally recognized SACs (see fig. 1.1).

Figure 1.1: States With Apprenticeship Councils (SACS)



Federal apprenticeship regulations establish 22 basic standards that apprenticeship programs must meet to be eligible for registration. These include requirements that a program be formalized in writing, contain an equal opportunity pledge, contain an outline of the work processes in which the apprentice will be trained, provide for related instruction to supplement on-the-job training, include a progressively increasing schedule of wages, and maintain appropriate progress records for apprentices.

The major incentive for construction contractors to use apprentices has been that registered apprentices can be paid less than the prevailing wage rate on federally funded construction projects covered by the Davis-Bacon Act. Several states and local jurisdictions also have regulations providing similar incentives or mandatory requirements concerning the use of apprentices on publicly funded nonfederal construction projects.

Labor's Apprenticeship 2000 Review Conducted to Determine Appropriate Role for Apprenticeship

During the late 1980s, the Department of Labor sponsored research on the demographic and technological changes affecting the American work force. The changes identified led to Labor's Apprenticeship 2000 initiative. This effort, launched in December 1987, was to determine the role apprenticeship might play in meeting the demand for skilled workers in America.

Labor concluded that the apprenticeship concept of structured on-the-job training combined with classroom instruction (called work-based learning by Labor) is an ideal model for learning the job-specific skills needed by today's workers.[2] For example, the training can be tailored to an employer's specific needs. Many experts who participated in Labor's review felt that much more could be done—such as promotion and technical assistance—to assist and support industry in establishing and maintaining work-based learning programs.

Labor also concluded that apprenticeship remains a viable system of training because it produces well-rounded, productive, and flexible workers and that the potential exists for expansion within its traditional boundaries. Yet, outside the traditional trades, Labor did not see a strong emphasis on comprehensive skill acquisition. Therefore, Labor proposed that the apprenticeship concept be expanded beyond its traditional boundaries.

Apprenticeship Opportunities for Minorities and Women

Affirmative action for minorities in apprenticeship was an outgrowth both of specific federal regulations and requirements relating to apprenticeship and of general social changes. In the 1960s, picketing and demonstrations for hiring minority workers took place in many major cities. Such activism and a changing climate regarding EEO put pressure on the construction unions to open up to minorities. The construction industry in several major cities established affirmative action plans to increase the access of

[2]See Work-Based Learning: Training America's Workers (U.S. Department of Labor/Employment and Training Administration, Nov. 1989).

minorities to jobs and to apprenticeships. These efforts—combined with those undertaken by the National Urban League, the AFL-CIO, and other groups, along with the Department of Labor—resulted in a relatively large increase in the number of minority workers and apprentices in skilled trades during the 1970s.

Women's participation in apprenticeship grew gradually during the early 1970s. Two major lawsuits filed against the Department of Labor in 1976 charged discrimination against women in the construction trades and in apprenticeship. These were resolved by consent decrees that established goals for women in apprenticeship for all industries and for the construction industry in particular.

Federal regulations governing apprenticeships were revised in 1978 to require sponsors to adopt written affirmative action plans with goals and timetables, including a goal for female participation in apprenticeship programs.[3] Initially, each program was to set a goal for the percentage of women entering an apprenticeship class at not less than 50 percent of the proportion of women in the local work force; this number was to be adjusted appropriately in later years. Although current regulations do not require that sponsors attain a particular level of women's representation, those responsible for apprenticeship programs, including sponsors, state officials, and BAT field staff, generally follow the previously specified goal of 50 percent of women's local labor force participation. Also, during the late 1970s, Labor developed and funded outreach programs for women. Some programs that had been developed to recruit minorities into the trades expanded their activities to recruit women as well. In 1982, Labor's Women's Bureau[4] launched a nationwide initiative—called the Apprenticeship Training Initiative—aimed at employers, educators, unions, and others with the objective of increasing the number of women apprentices.

[3]Federal regulations relating to the administration of apprenticeship programs are in 29 C.F.R. 29. Regulations on EEO in apprenticeship are in 29 C.F.R. 30.

[4]The Women's Bureau is responsible for formulating standards and policies that promote the welfare of wage-earning women, increase their efficiency, and advance their opportunities for profitable employment.

Objectives, Scope, and Methodology

In May 1990, the Chairman, Subcommittee on Employment Opportunities, House Committee on Education and Labor, requested that we assess the operation of the apprenticeship system. Specifically, we were to obtain information on the use of apprenticeship as a training mechanism, identify the resources dedicated to traditional apprenticeship operations by federal and state governments, and determine the representation of minorities and women in apprenticeship.

For this study, we obtained information on federal apprenticeship expenditures and Bureau of Apprenticeship and Training staffing and operations from BAT's national office in Washington, D.C. We discussed nationwide apprenticeship issues with Department of Labor officials; the chairman of the Federal Committee on Apprenticeship; the chairman of the Joint Apprenticeship and Training Committee for the Building and Metal Trades, AFL-CIO; and the director of the Joint Apprenticeship and Training Committee for the Electrical Industry.

To obtain information on the perspective of field apprenticeship officials, we surveyed all 50 BAT state directors and the heads of all 30 state and territorial apprenticeship agencies concerning the resources allocated to apprenticeship; how potential sponsors are targeted, contacted, and persuaded to set up apprenticeship programs; and how compliance with affirmative action regulations is monitored and enforced. Forty-eight BAT state directors provided usable responses. Responses from two states (Kentucky and North Dakota) were provided but did not contain enough detail to be used. Twenty-three of the 27 state apprenticeship council responses were complete and provided in time to be used; 3 SACs (Pennsylvania, Puerto Rico, and the Virgin Islands) did not respond. We spoke with BAT state directors and SAC officials in New York, Maine, and Virginia; BAT state directors in Maryland and Georgia; and SAC officials in the District of Columbia. To supplement the survey data, we interviewed four BAT regional directors and made site visits to New York, San Francisco, and Chicago.

We obtained published and unpublished data from BAT and its Apprenticeship Management System (AMS). We used calendar year 1990 data for our change-over-time analysis to provide consistency with historical information. AMS data for the first quarter of fiscal year 1991 were provided by BAT in machine-readable form and used to obtain the information on the occupations of apprentices, their numbers by program, and their demographic characteristics. States represented in the AMS data account for about 70 percent of all current apprentices. The AMS data do

not include apprentices from California, the District of Columbia, Hawaii, or Rhode Island. Tabulations by occupation were created based on available AMS data for 68 occupations that had at least 250 civilian apprentices. Our focus was on civilian apprenticeships; we did not review military apprenticeships, which in calendar year 1990 enrolled about 44,000 persons. Because California is such a prominent state in terms of apprenticeship and numbers of apprentices, data for the closest corresponding period (Dec. 1990) were obtained from the California Department of Industrial Relations and included in the analysis.

Our work was performed between July 1990 and August 1991 in accordance with generally accepted government auditing standards. The Department of Labor's written comments on a draft of this report are presented in appendix VI. Labor also provided technical comments, which we included where appropriate.

Trends in Apprenticeship—Enrollment, Federal and State Resources, and Promotion

Except in the construction trades, U.S. employers make only limited use of apprenticeship to train workers for skilled occupations. The number of apprentices nationwide has fluctuated, but has not grown since the early 1970s. Resources dedicated to administering apprenticeship at the federal level are relatively small and declined in terms of both staff and constant dollars during the 1980s. In addition, federal and state apprenticeship staff view government efforts to encourage employer participation in apprenticeship programs as less than adequate, although worker demand for skill training through apprenticeship continues to be high.

Although the Bureau of Apprenticeship and Training recognizes over 800 apprenticeable occupations, two-thirds of all apprentices are in 20 occupations, mostly in the construction and metal trades (see table 2.1). BAT and the state councils have made efforts to expand apprenticeship into nonconstruction trades, and the major growth in civilian apprenticeship over the past decade has been in public service occupations, such as corrections officer, fire fighter, and police officer.

Table 2.1: Twenty Occupations with the Most Civilian Apprentices (1st quarter FY 1991)

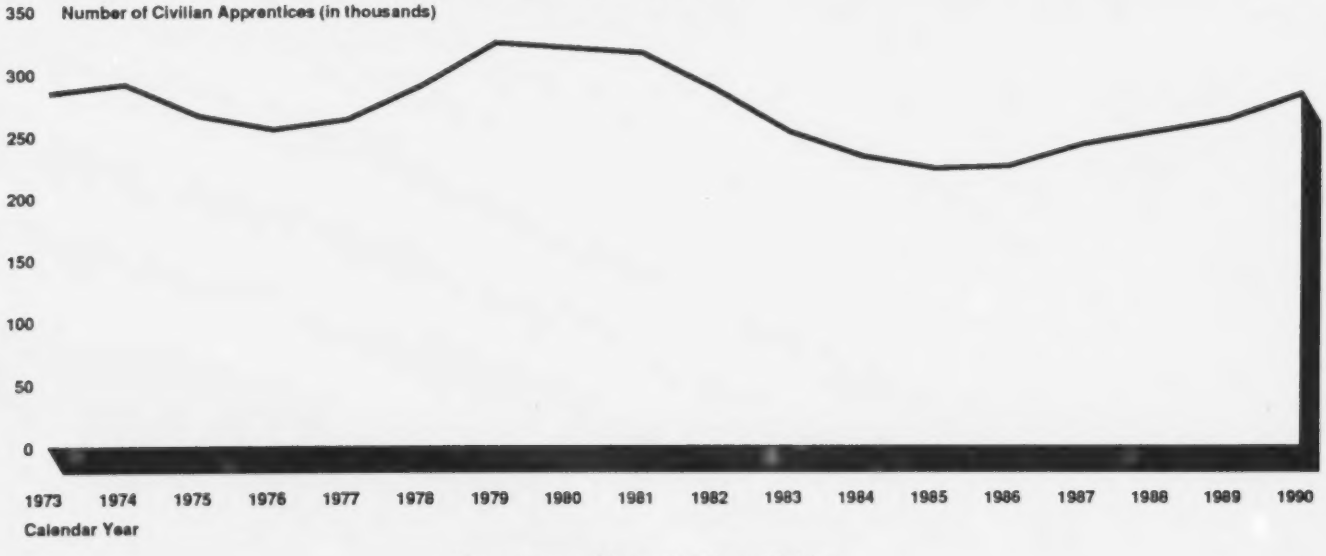
Occupation	Number of apprentices
Electrician	34,746
Carpenter	28,827
Corrections officer	12,513
Plumber	12,080
Pipefitter	11,630
Sheet metal worker	11,103
Roofer	7,607
Painter	5,930
Machinist	5,898
Structural steel worker	5,278
Tool and die maker	5,183
Fire fighter	5,076
Bricklayer	4,802
Operating engineer	4,268
Maintenance mechanic	3,223
Millwright	3,012
Police officer	2,962
Drywall applicator	2,207
Insulation worker	2,141
Electrician, maintenance	2,113

Source: Bureau of Apprenticeship and Training/AMS and California Department of Industrial Relations.

Apprenticeship programs also exist in several branches of the military (in 1990 there were about 44,000 uniformed military apprentices), although we did not study military apprenticeship.

Although employment has grown by 18 million since 1980, the use of apprenticeship has been declining relative to this growth. The United States had about 280,000 registered civilian apprentices at the end of 1990, equivalent to about 2 percent of the number of college students. The number of civilian apprentices has declined from a peak in 1979, and despite an upturn in enrollment since 1985, there were fewer registered apprentices in 1990 than in 1980 (see fig. 2.1).

Figure 2.1: Registered Civilian Apprentices in the United States (1973-90)

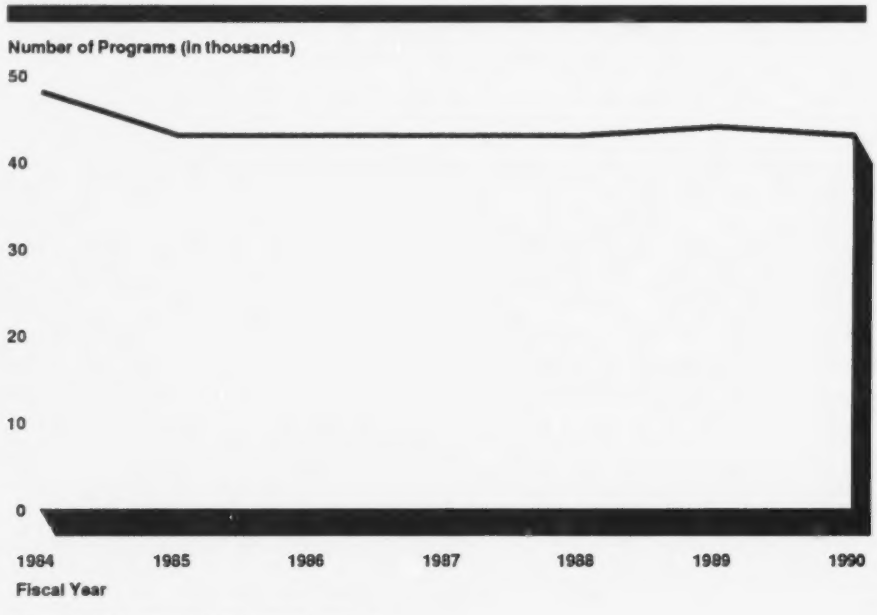


Source: Bureau of Apprenticeship and Training

Number of Programs Remains Steady, but Many Have No Apprentices

BAT records show that 43,394 apprenticeship programs were registered in 1990. About 3,000 new apprenticeship programs were registered in 1990, and 4,000 existing programs were canceled by sponsors. As shown in figure 2.2, the number of apprenticeship programs has remained essentially constant at about 43,000 since the mid-1980s. Many officially active apprenticeship programs currently have no active apprentices. During the first quarter of fiscal year 1991, about half of the programs (20,843) had no active apprentices.[1]

Figure 2.2: Registered Apprenticeship Programs in the United States (1984-90)



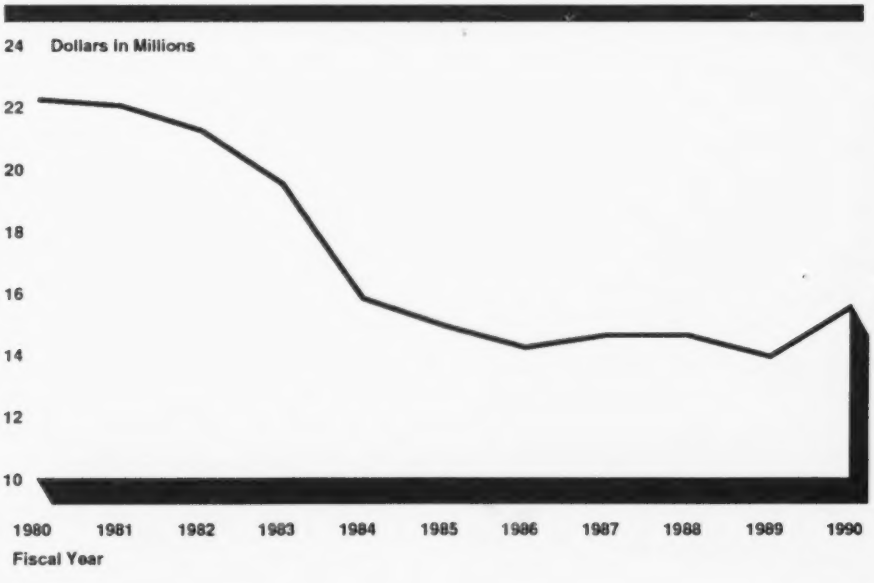
Source: BAT Summary Management Reports.

[1]Data are from BAT's Apprenticeship Management System, which contains information on about 70 percent of registered apprentices. Programs considered to be registered were those that operated and were not canceled at any time during that quarter.

Limited Federal Resources Provided for Apprenticeship

The cost of administering apprenticeship represents only a small portion of the total costs of apprenticeship training, which is mainly supported by the private sector. Since 1980, federal appropriations for apprenticeship services have declined by about 30 percent in 1990 dollars to about $15.5 million in 1990 (see fig. 2.3)—about 0.4 percent of Labor's total appropriation for training programs.

Figure 2.3: Federal Appropriations for Apprenticeship Services (1980-90)

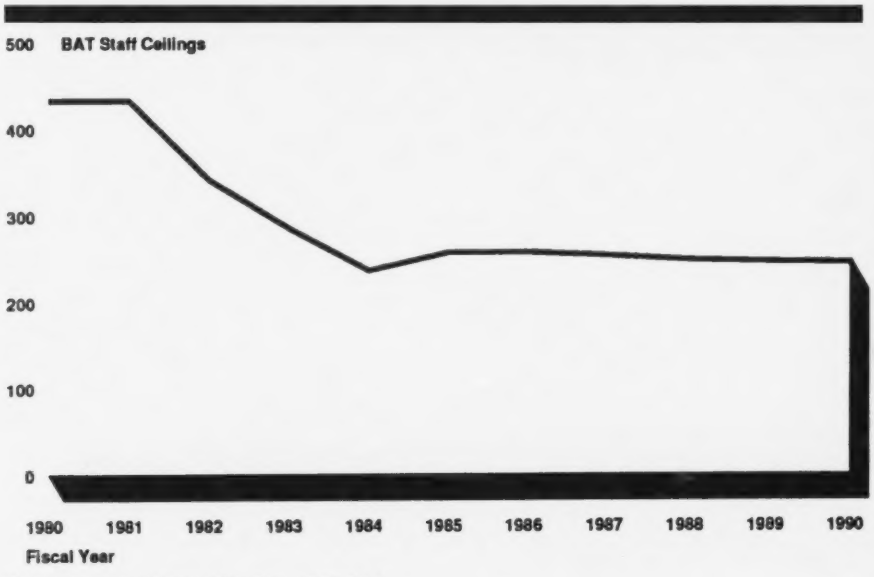


Constant 1990 Dollars

Source: Bureau of Apprenticeship and Training.

The bulk of BAT funding is for personnel costs. In 1990, over 70 percent of BAT's obligations were for staff compensation and benefits. As shown in figure 2.4, BAT staff ceilings dropped dramatically between 1981 and 1984 and have remained about constant since. From 1980 to 1990, staff ceilings dropped by 43 percent, and in 1990, BAT employed about 250 staff. Of these positions, 17 are in BAT's national office in Washington, D.C., and the rest are spread among 130 locations in the 50 states.

Figure 2.4: BAT Staff Ceilings (1980-90)



Source: Bureau of Apprenticeship and Training.

The states augment the efforts of federally funded apprenticeship staff, but state support may decrease in the future. In 1990, states spent almost three times as much as BAT on apprenticeship, but budget problems are leading some states to consider significantly reducing their support. Of the 30 states with apprenticeship councils, 21 responding to our survey reported combined fiscal year 1990 spending of $18.2 million for apprenticeship operations. Fourteen of these states reported spending another $29.2 million to support related instruction for apprentices.[2] However, two state apprenticeship directors reported that legislation had been proposed to abolish their state apprenticeship agencies, and seven

[2]Some of these funds have been provided through grants under the Carl D. Perkins Vocational and Applied Technology Education Act (1990).

said that reductions in state funding of 20 percent or more had been proposed.

In the 27 states where Labor has recognized SACs, varying numbers of staff are provided to support apprenticeship administration. For example, in January 1991, California's Division of Apprenticeship Standards employed 79 staff and BAT employed 4 staff in the state, while in Ohio there were 5 state staff and 11 BAT staff. Nationwide, SAC directors reported that their agencies employed 309 full-time staff.

Promotion of Apprenticeship

The number of people seeking training through apprenticeship often exceeds the number of available positions. Seventy-six percent of the BAT state directors and 86 percent of the SAC directors responding to our questionnaire indicated that demand for apprenticeship exceeded the availability of apprenticeship openings in their states. According to several of the BAT and SAC staff we interviewed, for apprenticeship to expand, employers must provide more openings.

BAT and state apprenticeship representatives engage in a number of activities to promote apprenticeship to prospective sponsors. Almost all of the BAT and state directors who responded indicated that they meet with employers, trade and industry groups, and employee associations to promote apprenticeship. Almost all indicated that they also attend job fairs and meet with school guidance counselors. Other promotional activities included sending letters and making telephone contact with potential employers and the media. Apprenticeship state directors reported that the most effective promotion activities were meeting with individual employers and with trade and industry groups and associations.

BAT apprenticeship and training representatives spent over one-fifth of their time with employers and labor organizations promoting apprenticeship. SAC staff devote more than 10 percent of their time to this activity. However, almost all BAT and SAC directors characterize both federal and state promotional efforts as less or much less than adequate.

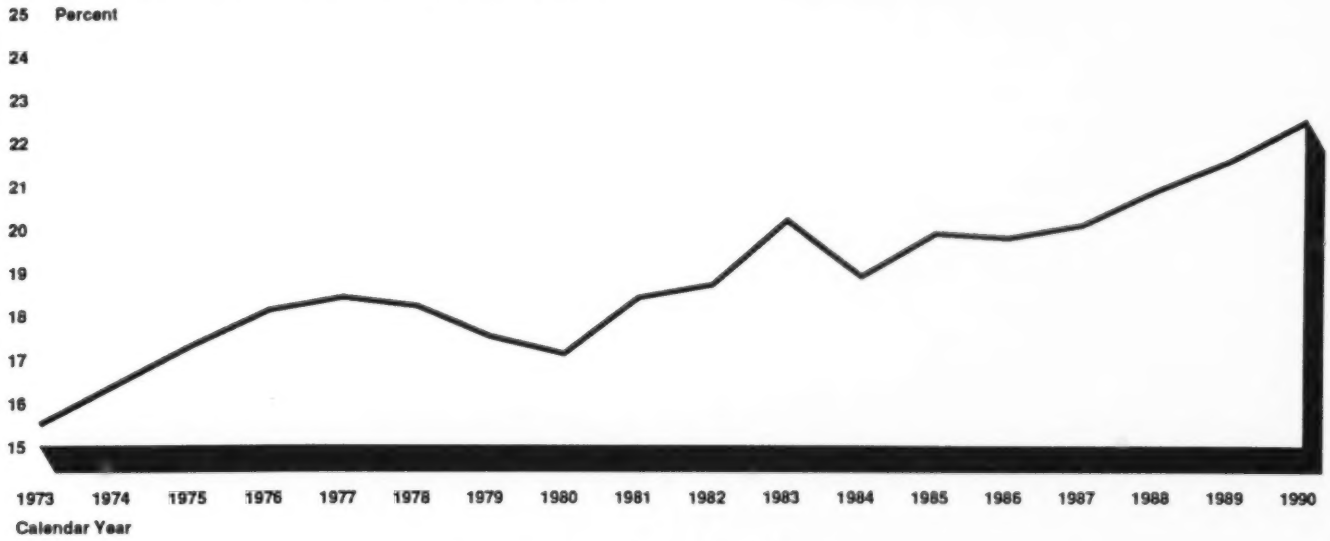
Minorities and Women in Apprenticeship Programs

Minority representation in apprenticeship has grown since 1973 and now closely approximates the minority proportion of the labor force. Women's representation, though substantially greater now than in 1973, is considerably below its target level of one-half of their proportion in the labor force. Both women and minorities tend to be concentrated in apprenticeships for occupations with lower earnings. The Bureau of Apprenticeship and Training and state agencies are responsible for reviewing sponsors' efforts to increase the representation of minorities and women in apprenticeship. Suggestions for improving affirmative action efforts are usually handled informally or by letters sent to program sponsors directing corrective action. BAT and state personnel seldom use program deregistration, the principal enforcement mechanism available, because they view it as extreme in light of the voluntary nature of the program, and counterproductive in that it would result in the termination of the formal training program.

Minorities Increase Share of Apprenticeships, but Are Concentrated in Lower Paying Occupations

Since 1973, the proportion of minorities in apprenticeship programs has risen by nearly 50 percent to 22.5 percent of apprentices (see fig. 3.1), about the same as their representation in the labor force. Although the numbers of both civilian apprentices and minority apprentices declined during the early 1980s, by 1990 the number of minority apprentices had exceeded the previous high reached in 1981. The largest number of civilian minority apprentices are in the carpenter, corrections officer, electrician, and roofer occupations. (See app. I.)

Figure 3.1: Percent of Minority Civilian Apprentices (1973-90)



Source: Bureau of Apprenticeship and Training

Minorities represented 22.5 percent of all civilian apprentices in calendar year 1990, according to BAT data. The percentage of minority civilian apprentices for the 68 largest occupations that we analyzed is 21.6 percent.[1] Minorities have their highest percentage representation in such occupations as wastewater treatment operator, cement mason, corrections officer, meat cutter, and cook, where they comprise more than 40 percent of apprentices.

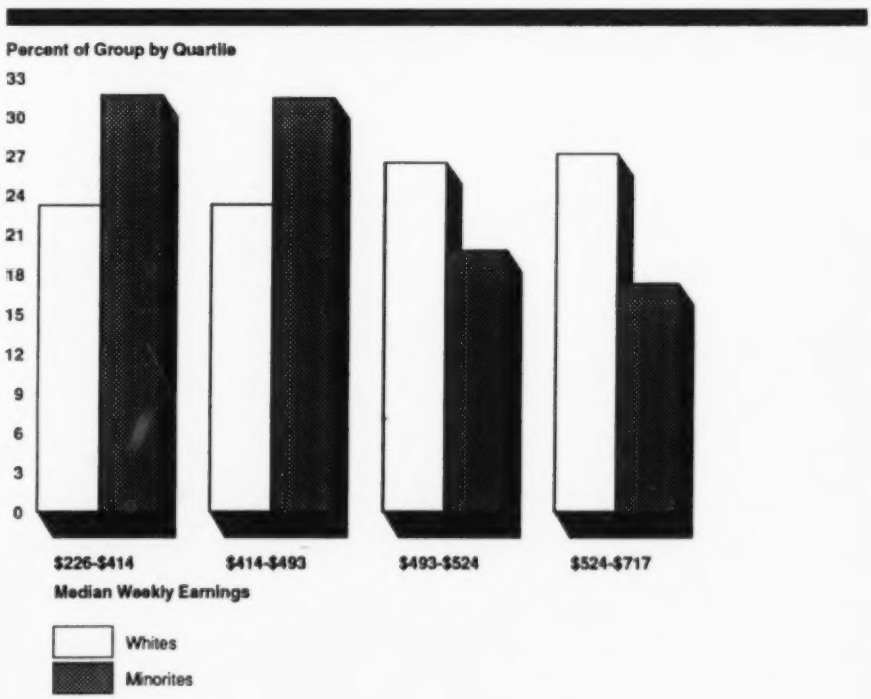
Many of the occupations in which many minorities serve as apprentices are in the traditional building trades and in the public sector. Building trades occupations with relatively large numbers of minority apprentices include carpenter, electrician, roofer, sheet metal worker, pipefitter, plumber, painter, structural iron worker, bricklayer, and operating engineer. Together these occupations account for about 25,000 minority apprentices, over half of all minority apprentices in the 68 largest

[1]Minority apprentices accounted for 16.4 percent for the 68 occupations using AMS data (which do not include California, Rhode Island, the District of Columbia, or Hawaii). California data, which were separately obtained, account for about 20 percent of the total civilian apprentices in these occupations. With minority apprenticeship representation in California at over 40 percent, its inclusion substantially increased the national percentage of minorities.

occupations. Corrections officer, fire fighter, and police officer in the public sector also have relatively large numbers of minorities in apprenticeships.

Minority apprentices are concentrated among the lower paying apprenticeable occupations.[2] Figure 3.2 shows that whites are more heavily concentrated in the higher earnings quartiles, while minorities are more heavily concentrated in the two lower earnings quartiles. The percentage of minority apprentices is highest, about 32 percent, in the lowest earnings quartile, which contains occupations with median weekly earnings below the U.S. average. That group of occupations includes four of the seven occupations where minority participation is highest—cement mason, meat cutter, cook, and roofer. (See app. II.)

Figure 3.2: Racial Distribution of Apprentices in Occupations Grouped by Median Weekly Earnings



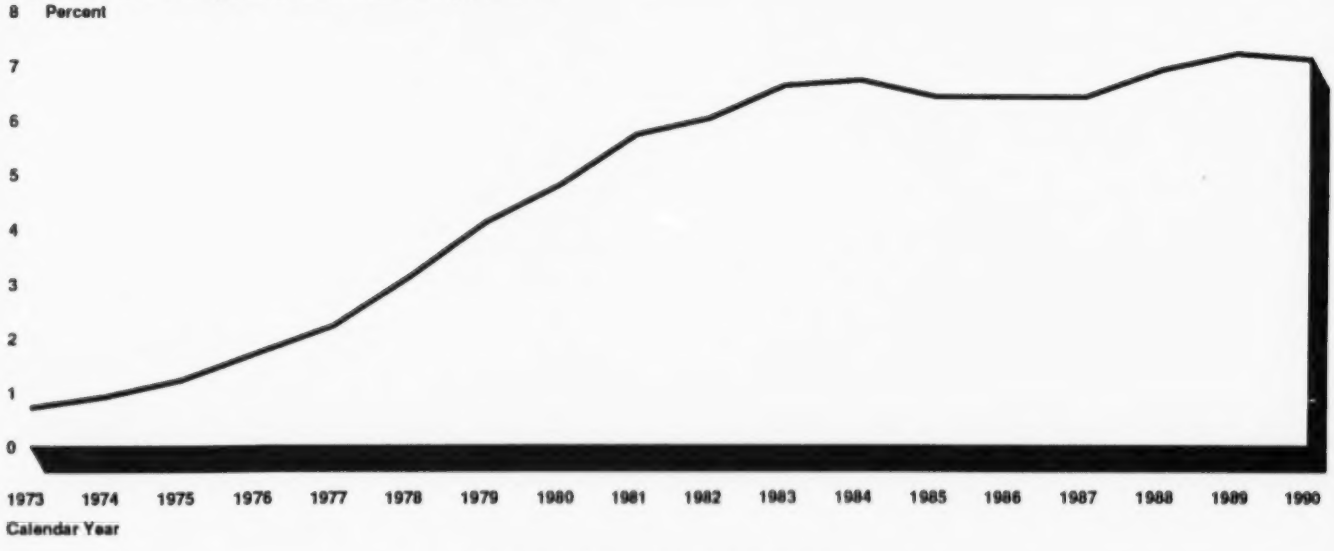
[2]According to 1990 data, most apprenticeships are in occupations whose median weekly earnings are above the U.S. average. Seventy-four percent of the apprentices in the 68 occupations analyzed worked in occupations with median earnings above the U.S. average of $415 in 1990.

Increasing the participation of minorities is an objective of state and federal agency officials responsible for apprenticeship administration. Most BAT state directors and SAC directors indicated that their states have guidelines, standards, or recommendations for increasing minority participation in apprenticeship programs. They report that the most effective technique for increasing the number of minority apprentices in their states has been direct recruiting. BAT directors reported that participating in Employment Service workshops for minorities and providing information to the Job Corps and local schools were also effective. SAC directors indicated that assisting sponsors in communicating EEO policies to employees was also effective.

Women Underrepresented in Apprenticeship and Concentrated in Lower Paying Occupations

Women's participation in apprenticeship grew rapidly in the 1970s and early 1980s, but since 1983 that growth has slowed considerably. In 1973, women apprentices accounted for 0.7 percent of all registered apprentices. That percentage increased to 6.7 percent by 1984. Since then, the percentage of women apprentices has grown slightly to 7.1 percent (see fig. 3.3) in 1990; this represents about 20,000 women apprentices.

Figure 3.3: Percentage of Women Civilian Apprentices



Source: Bureau of Apprenticeship and Training

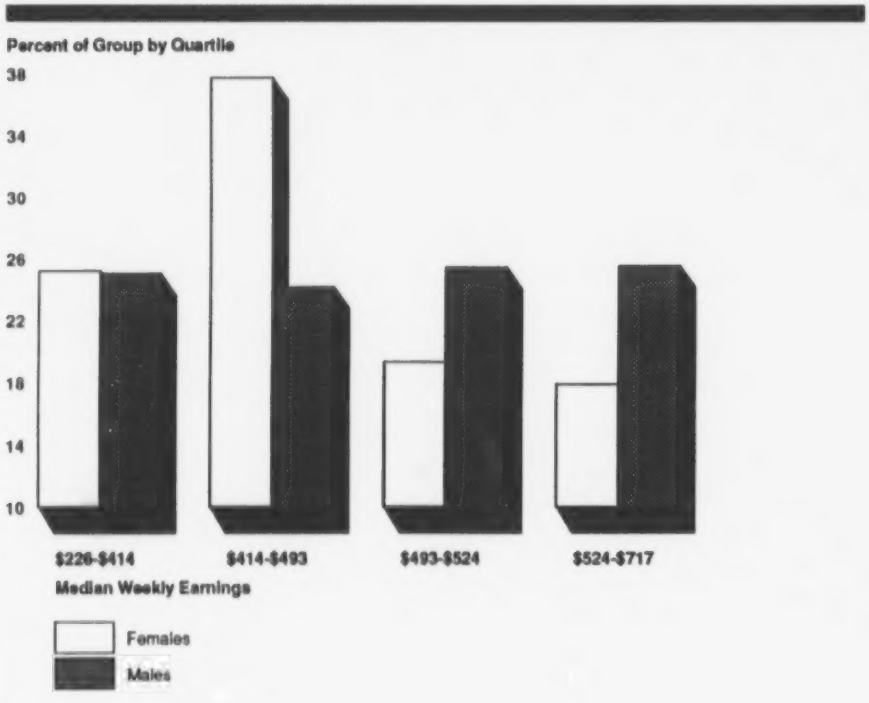
Women represent 6.5 percent of civilian apprentices (13,784 out of 211,349) in the 68 largest civilian occupations we analyzed. Women represent the majority of apprentices in two occupations—cosmetologist (89.9 percent) and computer peripheral operator (57.7 percent). The largest number of women apprentices is found in the corrections officer occupation (3,128); women represent 25 percent of apprentices in this occupation. (See app. III.)

Some apprenticeship programs with larger representations of women have active outreach programs for women. Operating engineer programs made their training facilities available to tours from women's groups in order to acquaint potential apprenticeship applicants with the equipment and environment involved in that occupation. This type of exposure to different jobs, along with other initiatives—such as targeted recruitment efforts with school guidance staff, recruitment in both urban and rural areas, and elimination of upper age limits—are strategies that have been successful in promoting this apprenticeship field to women. Women account for less than 1 percent of those employed as operating engineers, but make up almost 20 percent of all apprentices for that occupation.[3] (See app. IV.)

Women apprentices are concentrated in apprenticeships for occupations with lower median earnings. As shown in figure 3.4, 17.9 percent of women apprentices were in the quartile with the highest paying occupations, and 63 percent of women, compared to 49 percent of men, were in the lowest two earnings quartiles. In addition, the lowest paying group, containing occupations with median weekly earnings below the U.S. average, includes three of the four occupations where women's apprenticeship participation rates were the highest—cosmetologist, computer peripheral equipment operator, and cook. (See app. V.)

[3]In 52 of the 68 occupations with 250 or more civilian apprentices, women represented a greater share of apprentices than they did of all those employed in those occupations (see app. V).

Figure 3.4: Distribution of Apprentices by Gender in Occupations Grouped by Median Weekly Earnings



Almost all BAT state directors and SAC directors said that their states have guidelines, standards, or recommendations for increasing women's participation in apprenticeship programs. The proportion of women in apprenticeship increased during the late 1970s and early 1980s, but funding for the programs that supported this increase has since been reduced. In 1981, support for outreach and recruitment efforts declined, and these programs now receive little direct Labor funding. Labor's Women's Bureau continues to support such efforts, but only in a limited way due to lack of funds.

BAT state directors and SAC directors reported that after prior efforts to recruit and attract women, enrollments of women in apprenticeship programs had increased. The responses from both groups indicate that direct recruiting is the most successful approach to increasing the number of women apprentices, followed by assisting sponsors with their EEO guidelines and providing information to groups that prepare women for apprenticeship.

Barriers to Women in Apprenticeship

Women face numerous barriers to increasing their numbers in apprenticeship, according to a study of issues relating to women in apprenticeship that was funded by Labor as part of Apprenticeship 2000.[4] Among the identified barriers to women's entry into apprenticeship were the upper age limits for some apprenticeship programs, the ratings given to education and background factors (such as having taken algebra, physics, or blueprint reading) for entry into programs, and many women's lack of routine physical conditioning. In addition, women who have entered apprenticeship programs in some occupations face obstacles, such as hazing, sexual harassment, isolation, and nonacceptance by male coworkers.[5]

EEO In Apprenticeship: Compliance Review and Enforcement

All formally registered apprenticeship programs require sponsors to make an EEO pledge. Also, in registered programs with five or more apprentices, sponsors are required to take affirmative action for the selection and recruitment of minorities and women, and to set goals and timetables to address underrepresentation of minorities and women in apprenticeship. For women, the goal was to achieve at least 50 percent of their representation in the local labor force.[6] This specific requirement applied only during the first year that the BAT EEO regulations were in effect (1978-79). Since 1979, BAT has not issued any additional specific guidance concerning the representation of women in apprenticeship programs. In addition, the BAT or SAC agencies are required to monitor and enforce compliance with these regulations. Of 21 responding SAC directors, 10 said that their states have EEO regulations that are more stringent than federal regulations.

In response to our survey questions on the level of EEO compliance activities, BAT field staff and state apprenticeship personnel from 46 states reported that they spent on average about 8 percent of their time on EEO compliance monitoring. BAT state directors indicated that during fiscal year 1990, they reviewed about one-third of the 4,845 programs in their states with five or more participants. The directors said that they conducted 90 percent of these reviews on site. According to the responses from the SAC directors, their staff reviewed about 2,800 programs for EEO compliance

[4]Report by the Enhancement Group, Inc. Issues Relating to EEO Apprenticeship Regulations.

[5]For a discussion of issues relating to women in apprenticeship, see "A Route to the High-Paying Skilled Trades for Women?" by Robert W. Glover in Job Training for Women: The Promise and Limits of Public Policies, Sharon L. Harlen and Ronnie J. Steinberg, editors. Philadelphia: Temple University Press, 1989.

[6]In 1990 women represented 45.3 percent of the national civilian labor force.

during the same year. This included about two-thirds of programs in their states with five or more participants.

BAT and SAC staff use various mechanisms to enforce compliance with EEO requirements in apprenticeship programs. Officials we talked with said that suggestions for improving affirmative action efforts were typically handled informally. However, survey respondents reported that 582 programs were sent letters following program reviews that directed corrective action. The principal available enforcement mechanism is program deregistration, but BAT and state personnel view this as extreme and counterproductive given the voluntary nature of program registration. Since 1987, respondents indicated that three programs have been deregistered for EEO noncompliance, although the number of programs that voluntarily withdrew from formal apprenticeship by canceling their programs rather than face deregistration is unknown.

In November 1990, BAT and the Office of Federal Contract Compliance Programs (OFCCP) signed a Memorandum of Understanding that authorized OFCCP to receive and investigate complaints regarding EEO in apprenticeship. The manner in which this new joint responsibility for enforcing the requirements of 29 C.F.R. 30 will be handled has yet to be fully determined.

Conclusions

The participation of minorities and women in apprenticeship has increased. Minority representation in apprenticeship programs is equivalent to minority participation in the labor force, likely as a result of actions taken during the 1970s. For women, progress in increasing participation in apprenticeship programs slowed considerably in the 1980s, as did Department of Labor outreach, recruiting, and promotional efforts. Although women's participation in registered apprenticeships increased from 0.7 percent in 1973 to 6.6 percent in 1983, it had increased only slightly to 7.1 percent by 1990. The Department's original goal for women's participation in apprenticeship was to reach a proportion equal to half of their participation in the work force. As women made up about 45 percent of the labor force in 1990, women's participation in apprenticeship remains far short of that goal.

Recommendation

We recommend that the Secretary of Labor work with the Bureau of Apprenticeship and Training and the Women's Bureau to identify actions to improve the outreach and recruiting of women into apprenticeships.

Agency Comments

In its January 14, 1992, comments on a draft of this report (see app. VI), the Department of Labor agreed with our findings and conclusions. Labor stated that it has already taken steps to address most of the concerns expressed in the report. We agree that the Secretary's initiative, Women in Skilled Trades, is a major effort of the Women's Bureau, OFCCP, and BAT and that it should assist women in obtaining training and employment in skilled nontraditional jobs, including apprenticeship. However, it contains no specific guidance or directives to BAT to improve women's participation in apprenticeship.

Civilian Apprentices and Minority Apprentices—68 Occupations With the Largest Numbers of Civilian Apprentices (1990)

Occupation	Total number of apprentices	Minority apprentices	
		Number	As a percent of total
Carpenter	28,827	6,416	22.3
Corrections officer	12,513	5,759	46.0
Electrician	34,746	4,805	13.8
Roofer	7,607	2,904	38.2
Sheet metal worker	11,103	1,953	17.6
Plumber	12,080	1,880	15.6
Painter	5,930	1,715	28.9
Pipefitter	11,630	1,608	13.8
Operating engineer	4,268	1,382	32.4
Fire fighter	5,076	1,114	21.9
Structural steel worker	5,278	1,101	20.9
Bricklayer—construction	4,802	1,051	21.9
Cement mason	2,092	1,006	48.1
Police officer	2,962	791	26.7
Machinist	5,898	784	13.3
Drywall applicator	2,207	741	33.6
Cook (hotel and restaurant)	1,938	677	34.9
Maintenance mechanic (any industry)	3,223	522	16.2
Plasterer	1,309	458	35.0
Automobile mechanic	1,713	416	24.3
Taper	1,028	394	38.3
Lather	970	354	36.5
Meat cutter	777	342	44.0
Welder, combination	1,161	340	29.3
Insulation worker	2,141	334	15.6
Floor layer	1,050	333	31.7
Stationary engineer	1,183	322	27.2
Cabinetmaker	989	319	32.3
Tool and die maker	5,183	314	6.1
Millwright	3,012	311	10.3
Refrigeration mechanic (any industry)	1,472	304	20.7
Boilermaker	1,595	288	18.1
Chemical operator	1,068	276	25.8
Tile setter	1,028	267	26.0
Electrician, maintenance	2,113	258	12.2
Cook (any industry)	596	257	43.1
Fire medic	1,175	215	18.3
Line maintainer	1,841	209	11.4
Maintenance repairer	516	195	37.8

(continued)

Occupation	Total number of apprentices	Minority apprentices	
		Number	As a percent of total
Glazier	1,011	178	17.6
Diesel mechanic	744	178	23.9
Pipefitter, ship and boat	676	163	24.1
Environmental control systems installer	1,065	161	15.1
Electronics mechanic	879	159	18.1
Cosmetologist	543	154	28.4
Car repairer—locomotive	1,145	144	12.6
Wastewater treatment operator	288	139	48.3
Shipfitter	539	131	24.3
Reinforcing metal worker	495	126	25.5
Electrician (ship and boat)	506	115	22.7
Line erector	1,228	113	9.2
Construction worker II	325	108	33.2
Welder, arc	360	102	28.3
Auto body repairer	385	88	22.9
Machine repairer—maintenance	716	83	11.6
Machinist—outside (ship)	523	80	15.3
Die maker, stamping	523	79	15.1
Tool maker	1,174	78	6.6
Bartender	299	77	25.8
Construction worker I	391	75	19.2
Computer peripheral equipment operator	272	61	22.4
Mold maker, die cast	1,110	50	4.5
Offset press operator-lithographer	336	48	14.3
Line repairer	537	47	8.8
Maintenance machinist	338	41	12.1
Instrument mechanic (any industry)	297	39	13.1
Maintenance repairer (industrial)	265	30	11.3
Protective signal installer	279	9	3.2
Total	**211,349**	**45,571**	**21.6**

Sources: BAT AMS data—68 occupations with 250 or more civilian apprentices, 1st Quarter 1991; California Department of Industrial Relations.

Minority Apprentices' Occupations, by Earnings

Occupation	Median weekly earnings	Total number of apprentices	Minority apprentices	
			Number	Percent of total
Quartile 4 ($524-$717)				
Car repairer—locomotive	$717	1,145	144	12.6
Fire fighter	595	5,076	1,114	21.9
Line maintainer	593	1,841	209	11.4
Line erector	593	1,228	113	9.2
Line repairer	593	537	47	8.8
Reinforcing metal worker	569	495	126	25.5
Structural steel worker	569	5,278	1,101	20.9
Electrician, maintenance	563	2,113	258	12.2
Stationary engineer	562	1,183	322	27.2
Police officer	559	2,962	791	26.7
Die maker, stamping	557	523	79	15.1
Tool maker	557	1,174	78	6.6
Tool and die maker	557	5,183	314	6.1
Mold maker, die cast	557	1,110	50	4.5
Millwright	550	3,012	311	10.3
Maintenance machinist	550	338	41	12.1
Electrician (ship and boat)	524	506	115	22.7
Electrician	524	19,133	2,646	13.8
Quartile 3 ($493-$524)				
Electrician	524	15,613	2,159	13.8
Protective signal installer	524	279	9	3.2
Chemical operator	523	1,068	276	25.8
Fire medic	510	1,175	215	18.3
Plumber	508	12,080	1,880	15.6
Pipefitter, ship and boat	508	676	163	24.1
Pipefitter	508	11,630	1,608	13.8
Bricklayer—construction	506	4,802	1,051	21.9
Operating engineer	504	4,268	1,382	32.4
Shipfitter	497	539	131	24.3
Sheet metal worker	493	708	125	17.6
Quartile 2 ($414-$493)				
Sheet metal worker	493	10,395	1,828	17.6
Machinist	486	5,898	784	13.3
Machinist—outside (ship)	480	523	80	15.3
Maintenance repairer (industrial)	480	265	30	11.3

(continued)

Occupation	Median weekly earnings	Total number of apprentices	Minority apprentices	
			Number	Percent of total
Electronics mechanic	$472	879	159	18.1
Boilermaker	470	1,595	288	18.1
Maintenance mechanic (any industry)	469	3,223	522	16.2
Wastewater treatment operator	467	288	139	48.3
Maintenance repairer	462	516	195	37.8
Machine repairer—maintenance	462	716	83	11.6
Instrument mechanic (any industry)	462	297	39	13.1
Diesel mechanic	458	744	178	23.9
Plasterer	457	1,309	458	35.0
Tile setter	457	1,028	267	26.0
Glazier	457	1,011	178	17.6
Corrections officer	449	12,513	5,759	46.0
Refrigeration mechanic (any industry)	447	1,472	304	20.7
Environmental control system installer	447	1,065	161	15.1
Drywall applicator	443	2,207	741	33.6
Lather	443	970	354	36.5
Taper	443	1,028	394	38.3
Insulation worker	436	2,141	334	15.6
Welder, arc	423	360	102	28.3
Welder, combination	423	1,161	340	29.3
Cement mason	414	1,233	593	48.1
Quartile 1 ($226-$414)				
Cement mason	414	859	413	48.1
Carpenter	412	28,827	6,416	22.3
Offset press operator-lithographer	410	336	48	14.3
Auto body repairer	403	385	88	22.9
Automobile mechanic	393	1,713	416	24.3
Painter	382	5,930	1,715	28.9
Floor layer	376	1,050	333	31.7
Computer peripheral equipment operator	374	272	61	22.4
Cabinetmaker	356	989	319	32.3
Construction worker I	347	391	75	19.2
Construction worker II	347	325	108	33.2
Roofer	341	7,607	2,904	38.2

(continued)

Occupation	Median weekly earnings	Total number of apprentices	Minority apprentices	
			Number	Percent of total
Meat cutter	$314	777	342	44.0
Bartender	248	299	77	25.8
Cosmetologist	247	543	154	28.4
Cook (hotel and restaurant)	226	1,938	677	34.9
Cook (any industry)	226	596	257	43.1
Total	**$415**	**211,349**	**45,571**	**21.6**

Note: Analysis by quartile requires that the groups of observations (in this case number of apprentices) be of equal size. To create equally sized groups of apprentices, three occupations were split.

Sources: BAT/AMS, California Department of Industrial Relations, and Bureau of Labor Statistics.

Women Civilian Apprentices

Occupation	Total number of apprentices	Women apprentices	
		Number	Percent of total
Cosmetologist	543	488	89.9
Computer peripheral equipment operator	272	157	57.7
Corrections officer	12,513	3,128	25.0
Cook (any industry)	596	137	23.0
Electronics mechanic	879	198	22.5
Cook (hotel and restaurant)	1,938	419	21.6
Electrician (ship and boat)	506	101	20.0
Construction worker II	325	64	19.7
Operating engineer	4,268	835	19.6
Die maker, stamping	523	98	18.7
Chemical operator	1,068	168	15.7
Welder, arc	360	51	14.2
Police officer	2,962	384	13.0
Machinist—outside (ship)	523	67	12.8
Maintenance repairer	516	56	10.9
Wastewater treatment operator	288	29	10.1
Shipfitter	539	51	9.5
Instrument mechanic (any industry)	297	28	9.4
Bartender	299	26	8.7
Welder, combination	1,161	94	8.1
Painter	5,930	474	8.0
Pipefitter, ship and boat	676	54	8.0
Meat cutter	777	61	7.9
Cement mason	2,092	161	7.7
Stationary engineer	1,183	91	7.7
Insulation worker	2,141	148	6.9
Offset press operator-lithographer	336	22	6.5
Boilermaker	1,595	104	6.5
Taper	1,028	62	6.0
Machinist	5,898	341	5.8
Car repairer—locomotive	1,145	62	5.4
Electrician, maintenance	2,113	112	5.3
Tool maker	1,174	62	5.3
Reinforcing metal worker	495	26	5.3
Plasterer	1,309	67	5.1
Carpenter	28,827	1,331	4.6
Machine repairer—maintenance	716	33	4.6
Tile setter	1,028	45	4.4

(continued)

Occupation	Total number of apprentices	Women apprentices	
		Number	Percent of total
Electrician	34,746	1,518	4.4
Fire fighter	5,076	219	4.3
Fire medic	1,175	49	4.2
Millwright	3,012	120	4.0
Cabinetmaker	989	38	3.8
Sheet metal worker	11,103	418	3.8
Maintenance mechanic (any industry)	3,223	118	3.7
Maintenance machinist	338	12	3.6
Pipefitter	11,630	408	3.5
Maintenance repairer (industrial)	265	9	3.4
Structural steel worker	5,278	160	3.0
Protective signal installer	279	8	2.9
Construction worker I	391	10	2.6
Tool and die maker	5,183	127	2.5
Plumber	12,080	279	2.3
Environmental control system installer	1,065	24	2.3
Bricklayer—construction	4,802	98	2.0
Refrigeration mechanic (any industry)	1,472	29	2.0
Diesel mechanic	744	13	1.7
Roofer	7,607	128	1.7
Glazier	1,011	17	1.7
Automobile mechanic	1,713	28	1.6
Drywall applicator	2,207	34	1.5
Floor layer	1,050	16	1.5
Line maintainer	1,841	27	1.5
Lather	970	14	1.4
Auto body repairer	385	5	1.3
Mold maker, die cast	1,110	11	1.0
Line erector	1,228	11	0.9
Line repairer	537	1	0.2
Total	**211,349**	**13,784**	**6.5**

Sources: BAT/AMS and California Department of Industrial Relations.

Percentage of Women Among Civilian Apprentices and Percentage Employed in Occupation

Figures in percent

Occupation	Women apprentices	Women employed in occupation
Car repairer—locomotive	5.4	2.8
Fire fighter	4.3	1.5
Line erector	0.9	2.6
Line repairer	0.2	2.6
Line maintainer	1.5	2.6
Structural steel worker	3.0	0.0
Reinforcing metal worker	5.3	0.0
Electrician, maintenance	5.3	8.8
Stationary engineer	7.7	3.6
Police officer	13.0	11.6
Tool maker	5.3	2.0
Mold maker, die cast	1.0	2.0
Die maker, stamping	18.7	2.0
Tool and die maker	2.5	2.0
Maintenance machinist	3.6	1.1
Millwright	4.0	1.1
Electrician	4.4	1.5
Electrician (ship and boat)	20.0	1.5
Protective signal installer	2.9	1.5
Chemical operator	15.7	14.1
Fire medic	4.2	31.7
Pipefitter, ship and boat	8.0	0.8
Plumber	2.3	0.8
Pipefitter	3.5	0.8
Bricklayer—construction	2.0	0.0
Operating engineer	19.6	0.9
Shipfitter	9.5	4.5
Sheet metal worker	3.8	6.2
Machinist	5.8	3.4
Machinist—outside (ship)	12.8	3.3
Maintenance repairer (industrial)	3.4	3.3
Electronics mechanic	22.5	9.3
Boilermaker	6.5	4.5
Maintenance mechanic (any industry)	3.7	3.4
Wastewater treatment operator	10.1	1.7
Maintenance repairer	10.9	4.6
Machine repairer—maintenance	4.6	4.6
Instrument mechanic (any industry)	9.4	4.6

(continued)

Figures in percent

Occupation	Women apprentices	Women employed in occupation
Diesel mechanic	1.7	0.4
Tile setter	4.4	1.4
Plasterer	5.1	1.4
Glazier	1.7	1.4
Corrections officer	25.0	17.4
Refrigeration mechanic (any industry)	2.0	0.5
Environmental control system installer	2.3	0.5
Drywall applicator	1.5	0.9
Lather	1.4	0.9
Taper	6.0	0.9
Insulation worker	6.9	2.0
Welder, combination	8.1	4.5
Welder, arc	14.2	4.5
Cement mason	7.7	0.0
Carpenter	4.6	1.3
Offset press operator-lithographer	6.5	14.0
Auto body repairer	1.3	0.0
Automobile mechanic	1.6	0.5
Painter	8.0	3.5
Floor layer	1.5	2.0
Computer peripheral equipment operator	57.7	64.8
Cabinetmaker	3.8	14.8
Construction worker I	2.6	2.9
Construction worker II	19.7	2.9
Roofer	1.7	0.0
Meat cutter	7.9	22.2
Bartender	8.7	52.4
Cosmetologist	89.9	89.2
Cook (hotel and restaurant)	21.6	41.6
Cook (any industry)	23.0	41.6

Sources: BAT/AMS, California Department of Industrial Relations, and Bureau of Labor Statistics.

Occupations, by Earnings—Women Apprentices

Occupation	Median weekly earnings	Total number of apprentices	Women apprentices	
			Number	Percent of total
Quartile 4 ($524-$717)				
Car repairer—locomotive	$717	1,145	62	5.4
Fire fighter	595	5,076	219	4.3
Line maintainer	593	1,841	27	1.5
Line erector	593	1,228	11	0.9
Line repairer	593	537	1	0.2
Reinforcing metal worker	569	495	26	5.3
Structural steel worker	569	5,278	160	3.0
Electrician, maintenance	563	2,113	112	5.3
Stationary engineer	562	1,183	91	7.7
Police officer	559	2,962	384	13.0
Die maker, stamping	557	523	98	18.7
Tool maker	557	1,174	62	5.3
Tool and die maker	557	5,183	127	2.5
Mold maker, die cast	557	1,110	11	1.0
Millwright	550	3,012	120	4.0
Maintenance machinist	550	338	12	3.6
Electrician (ship and boat)	524	506	101	20.0
Electrician	524	19,133	836	4.4
Quartile 3 ($493-$524)				
Electrician	524	15,613	682	4.4
Protective signal installer	524	279	8	2.9
Chemical operator	523	1,068	168	15.7
Fire medic	510	1,175	49	4.2
Plumber	508	12,080	279	2.3
Pipefitter, ship and boat	508	676	54	8.0
Pipefitter	508	11,630	408	3.5
Bricklayer—construction	506	4,802	98	2.0
Operating engineer	504	4,268	835	19.6
Shipfitter	497	539	51	9.5
Sheet metal worker	493	708	26	3.7
Quartile 2 ($414-$493)				
Sheet metal worker	493	10,395	392	3.8
Machinist	486	5,898	341	5.8
Machinist—outside (ship)	480	523	67	12.8
Maintenance repairer (industrial)	480	265	9	3.4
Electronics mechanic	472	879	198	22.5
Boilermaker	470	1,595	104	6.5

(continued)

Occupation	Median weekly earnings	Total number of apprentices	Women apprentices	
			Number	Percent of total
Maintenance mechanic (any industry)	$469	3,223	118	3.7
Wastewater treatment operator	467	288	29	10.1
Maintenance repairer	462	516	56	10.9
Machine repairer—maintenance	462	716	33	4.6
Instrument mechanic (any industry)	462	297	28	9.4
Diesel mechanic	458	744	13	1.7
Plasterer	457	1,309	67	5.1
Tile setter	457	1,028	45	4.4
Glazier	457	1,011	17	1.7
Corrections officer	449	12,513	3,128	25.0
Refrigeration mechanic (any industry)	447	1,472	29	2.0
Environmental control system installer	447	1,065	24	2.3
Drywall applicator	443	2,207	34	1.5
Lather	443	970	14	1.4
Taper	443	1,028	62	6.0
Insulation worker	436	2,141	148	6.9
Welder, arc	423	360	51	14.2
Welder, combination	423	1,161	94	8.1
Cement mason	414	1,233	95	7.7
Quartile 1 ($226-$414)				
Cement mason	414	859	66	7.7
Carpenter	412	28,827	1,331	4.6
Offset press operator-lithographer	410	336	22	6.5
Auto body repairer	403	385	5	1.3
Automobile mechanic	393	1,713	28	1.6
Painter	382	5,930	474	8.0
Floor layer	376	1,050	16	1.5
Computer peripheral equipment operator	374	272	157	57.7
Cabinetmaker	356	989	38	3.8
Construction worker I	347	391	10	2.6
Construction worker II	347	325	64	19.7
Roofer	341	7,607	128	1.7
Meat cutter	314	777	61	7.9
Bartender	248	299	26	8.7

(continued)

Occupation	Median weekly earnings	Total number of apprentices	Women apprentices	
			Number	Percent of total
Cosmetologist	$247	543	488	89.9
Cook (hotel and restaurant)	226	1,938	419	21.6
Cook (any industry)	226	596	137	23.0
Total	**$415**	**211,349**	**13,784**	**6.5**

Note: Analysis by quartile requires that the groups of observations (in this case number of apprentices) be of equal size. To create equally sized groups of apprentices, three occupations were split.

Sources: BAT/AMS, California Department of Industrial Relations, and Bureau of Labor Statistics.

Comments From the Department of Labor

U.S. DEPARTMENT OF LABOR

SECRETARY OF LABOR
WASHINGTON, D.C.

JAN 14 1992

The Honorable Charles A. Bowsher
Comptroller General of the
United States
U.S. General Accounting Office
441 G Street, N.W.
Room 7000
Washington, D.C. 20548

Dear Mr. Bowsher:

Thank you for the opportunity to review and provide comments on the U.S. General Accounting Office (GAO) draft report, entitled Apprenticeship Training: Administration, Use, and Equal Opportunity (GAO/HRD-92-43). This report provides further information on issues which have been the basis for both administrative and operational initiatives to improve and expand the apprenticeship system. The report also addresses the need for more opportunities for women in apprenticeship. In an effort to clarify certain portions of the draft report that discuss sponsors' affirmative action obligations to address underutilization of minorities and women, we suggest that two sections of the draft report be slightly modified. We have made our proposed changes directly on the enclosed copies of pages 13 and 31-32 from the draft report.

The Department has already taken major steps to address most of the concerns expressed in the report. The Secretary's Initiative, Women In Skilled Trades, is a major effort of the Women's Bureau, Office of Federal Contract Compliance Programs, and the Bureau of Apprenticeship and Training to improve opportunities for women.

I would like to compliment the members of your staff who participated in this project. They provided extremely helpful comments and suggestions on how we can strengthen and improve the Apprenticeship Program. I will move quickly to address the other issues raised in addition to those mentioned above.

Sincerely,

Lynn Martin
LYNN MARTIN

Enclosure

Major Contributors to This Report

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